PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference SJW/37453.WOP	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/GB 03/04968	International filing date *(day/month/year)* 14.11.2003	Priority date *(day/month/year)* 15.11.2002
International Patent Classification (IPC) or both national classification and IPC C23F13/10		
Applicant MAGNESIUM ELEKTRON LIMITED		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

   ☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

   These annexes consist of a total of 4 sheets.

3. This report contains indications relating to the following items:

   - I ☒ Basis of the opinion
   - II ☐ Priority
   - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - IV ☐ Lack of unity of invention
   - V ☒ Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - VI ☐ Certain documents cited
   - VII ☐ Certain defects in the international application
   - VIII ☐ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
02.06.2004	23.02.2005
Name and mailing address of the international preliminary examining authority: European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized Officer Zech, N Telephone No. +31 70 340-2915

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB 03/04968

I. Basis of the report

1. With regard to the **elements** of the international application *(Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17))*:

Description, Pages

1-11 as originally filed

Claims, Numbers

1-28 received on 16.11.2004 with letter of 11.11.2004

Drawings, Sheets

1/3-3/3 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:
- ☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

   (Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	12,24-28
	No:	Claims	1-11,13-23
Inventive step (IS)	Yes:	Claims	
	No:	Claims	1-28
Industrial applicability (IA)	Yes:	Claims	1-28
	No:	Claims	

2. Citations and explanations

see separate sheet

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following documents:

D1: US-A-5 910 236 (IOSSEL YURI ET AL) 8 June 1999 (1999-06-08)

D2: KIM J-G ET AL: "ADVANCED MG-MN-CA SACRIFICIAL ANODE MATERIALS FOR CATHODIC PROTECTION FORTSCHRITTLICHE GALVANISCHE MG-MN-CA-ANODENMATERIALIEN FUER DEN KATHODISCHEN SCHUTZ" MATERIALS AND CORROSION - WERKSTOFFE UND KORROSION, VCH VERLAGSGESELLSCHAFT, WEINHEIM, DE, vol. 52, no. 2, February 2001 (2001-02), pages 137-139, XP001039205 ISSN: 0947-5117

D3: JUAREZ-ISLAS J A ET AL: "IMPROVING THE EFFICIENCY OF MAGNESIUM SACRIFICIAL ANODES" JOM, MINERALS, METALS AND MATERIALS SOCIETY, WARRENDALE, US, vol. 45, no. 9, 1 September 1993 (1993-09-01), pages 42-44, XP000395120 ISSN: 1047-4838

D4: US-B1-6 461 082 (SMITH STEPHEN N) 8 October 2002 (2002-10-08)

2. Inventive Step

2.1. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1 and 13 does not involve an inventive step in the sense of Article 33(3) PCT.

2.2. The document D1 is regarded as being the closest prior art to the subject-matter of claims 1 and 13. The document D1 (figures 7; column 7, lines 38-53) discloses composite sacrificial anodes consisting of several segments which are disposed around a corresponding electrical connector, adjacent to one another and electrically connected via their connector. Due to the packing of electrically connected anode segments interrupted by non-conducting barriers a relatively homogenized current density distribution is achieved (D1, column 6, line 58 - column 7, line 11), thus, resulting in a more uniform anode material dissolution on only their outermost exposed surface, and consequently the service life of such electrodes is prolonged (D1, column 4, lines 35-40).

2.3. Although it is not mentioned explicitly that the segments are cast, the person skilled in the art would assume they are cast, since it is common practice to do so. Furthermore, sacrificial anodes protecting constructions from corrosion by the environment are usually of considerable size and weight, e.g. heavier than 10 kg or even 100 kg (as documented in D4, column 2, paragraph 2; column 7, paragraph 7).

2.4. The anode designs in application and document D1 not only are largely similar but also solve the same problem, i.e. avoiding premature corrosion (page 3, line 26 of the application). Therefore, the subject-matter of claims 1 and 13 appears not to involve an inventive step.

3. Novelty

When assuming that the features of "cast segment material" and "anode weight of 10 kg and more" are part of general knowledge and normal use, it can be concluded that these features are implicit to the subject-matter of claim 1. Consequently, claims 1 and 13 as formulated do not disclose novel subject-matter.

4. Dependent claims

Dependent claims 2-12 and 14-28 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of novelty and/or inventive step, for claims 2, 3, 5-11, 14, 15, 17-23 and 27 see document D1 and the corresponding passages cited in the search report, for claims 4 and 16 see document D4 and the corresponding passages as mentioned, for claims 12 and 28 see document D2 and the corresponding passages cited in the search report, for claims 24-27 see document D3 and the corresponding passages cited in the search report, respectively.